

IN THE SPECIFICATION

Please amend the paragraph beginning at page 3, line 6, as follows:

[Fig. 1] A structural view of a machine[[-room]] room-less elevator according to Embodiment 1 of the present invention viewed downwards from a top of a hoistway.

Please amend the paragraph beginning at page 3, line 10, as follows:

[Fig. 3] A structural view of a machine[[-room]] room-less elevator according to Embodiment 2 of the present invention viewed downwards from the top of a hoistway.

Please amend the paragraph beginning at page 3, line 22, as follows:

[Fig. 7] A structural view of a machine[[-room]] room-less elevator according to Embodiment 3 of the present invention viewed downwards from the top of a hoistway.

Please amend the paragraph beginning at page 4, line 3, as follows:

[Fig. 9] A structural view of a machine[[-room]] room-less elevator according to Embodiment 4 of the present invention viewed downwards from the top of a hoistway.

Please amend the paragraph beginning at page 4, line 14, as follows:

[Fig. 13] A structural view of a machine[[-room]] room-less elevator according to Embodiment 5 of the present invention viewed downwards from the top of a hoistway.

Please amend the paragraph beginning at page 4, line 19, as follows:

[Fig. 15] A structural view of a machine[[-room]] room-less elevator according to Embodiment 6 of the present invention viewed downwards from the top of a hoistway.

Please amend the paragraph beginning at page 5, line 6, as follows:

[Fig. 19] A structural view of a machine[[-room]] room-less elevator according to Embodiment 7 of the present invention viewed downwards from the top of a hoistway.

Please amend the paragraph beginning at page 5, line 13, as follows:

Figs. 1 and 2 each show a construction of a machine room-less elevator according to Embodiment 1 of the present invention; Fig. 1 is a structural view viewed downwards from the top of a hoistway, and Fig. 2 is a side view viewed in a direction of an arrow of Fig. 1. In the hoistway 1, hoist ropes 7a, 7b of two systems are respectively fixed, at one ends thereof, to car suspending points 2a, 2b provided on either side of a car 2, and are respectively fixed, at the other ends thereof, to weight suspending points 3a, 3b provided on a center of gravity of a counterweight 3. The hoist ropes 7a, 7b are looped around deflector sheaves 8a and 8b, a drive sheave 6a and a sheave 6b, and return sheaves 9a, 9b, 10a, 10b, respectively. Here, the deflector sheaves 8a, 8b are provided at the top of the hoistway above the car suspending points 2a, 2b, and serve to increase a winding angles of the hoist ropes with respect to the drive sheave 6a and the sheave 6b, and to bring a line connecting car suspending points 2a, 2b to each other close to a center of gravity position in a horizontal plane of the car denoted by reference symbol G as shown in Fig. 1. Note that[[, a]] the fact that the line connecting two positions to each other passes near the center of gravity position G indicates that those two positions are nearly symmetrical with respect to the center of gravity. The drive sheave 6a and the sheave 6b are arranged at the top of the hoistway and outside of a horizontal projection plane of the car, and in an area where the counterweight 3 is raised and lowered, that is, a rear surface side of the car when viewed from a car door 20, so as to have a rotation axis parallel to the deflector sheaves 8a, 8b. Further, in Fig. 1, the return sheaves 9a, 9b, 10a, 10b are arranged so as to connect respectively between end points of the drive sheave 6a and

sheave 6b, and the weight suspending points 3a, 3b in a line. The drive sheave 6a is driven by a hoist 11 (which is indicated in the drawings by a dashed line because it overlaps with structures such as the counterweight and the hoist rope, and hereinafter shown in the same way) which is provided at the top of the hoistway and outside of the horizontal projection plane region in which the car 2 is raised and lowered, and on a side where the counterweight 3 is raised and lowered.

Please amend the paragraph beginning at page 10, line 1, as follows:

The elevator according to this embodiment is structured as described above[[, unlike]]. Unlike in Embodiment 1, running of a rope by means of the return sheave is little, the rope is simple in structure and is short. Further, the car is cut out, thereby making it possible to lower the top of the hoistway, increasing a degree of freedom for a design of the hoist or the like and also for an arrangement of apparatuses, and saving space.

Please amend the paragraph beginning at page 11, line 9, as follows:

The deflector sheave 82b is provided at the top of the hoistway above the car suspending point 2b, and serves to bring the line connecting the car suspending points 2a, 2b to each other close to the center of gravity position of the car denoted by reference symbol G as shown in Fig. 7. A drive sheave 62 is provided at the top of the hoistway and outside of the horizontal projection plane of the car, and in the area where the counterweight 3 is raised and lowered, that is, the rear surface side of the car when viewed from the car door 20, so as to have a rotation axis parallel to the deflector sheave 8a, and is driven by the hoist 11. Further, as shown in Fig. 7, return sheaves 92, 102 are arranged so as to connect an end point of the drive sheave 62 and a weight suspending point 33 to each other in a line. ~~Horizontal~~ Return sheaves 141, 142 are arranged so as to have an axis above the upper arrival limit of

the car at the top of the hoistway in a vertical direction, and serve to guide a hoist rope 72b passing on the drive sheave 62 to the deflector sheave 82b through the vicinity of the ceiling of the hoistway. The ~~horizontal~~ return sheaves 141, 142 are respectively provided with latches 151, 152 such that even if the car or the counterweight hits a buffer positioned at a bottom of the hoistway and the tension of the hoist rope is released, the rope does not come off from a groove in the sheave. Loads on the deflector sheaves 8a, 82b, the drive sheave 62, the ~~horizontal~~ return sheaves 141, 142, the return sheaves 92, 102, and the hoist 11 are supported by the guide rails 4, 5.

Please amend the paragraph beginning at page 12, line 13, as follows:

In this embodiment, there can only be ensured the winding angle of only 90° of the hoist rope 72b with respect to the drive sheave 62. Therefore, it is required to ensure a sufficient traction ability by using the hoist rope having a higher coefficient of friction such as a resin-covered rope rather than a conventional steel rope. Further, as in Embodiment 1, it is also possible to separately form a portion of the drive sheave 62, on which the hoist rope 72b is looped around, as another sheave to make the sheave rotatable with respect to a drive shaft of the hoist 11 through the intermediation of a bearing, for example, thereby avoiding the drive force to be transmitted.

Please amend the paragraph beginning at page 14, line 10, as follows:

Here, the deflector sheave 83b is provided at the top of the hoistway above the car suspending point 23b, and serves to bring the line connecting the car suspending points 23a, 23b to each other close to the center of gravity position of the car denoted by reference symbol G as shown in Fig. 9. The ~~horizontal~~ return sheave 143 is provided so as to have an axis above the upper arrival limit of the car at the top of the hoistway in a vertical direction,

and serves to guide a hoist rope 73b passing on the sheave 63b to the deflector sheave 83b through the vicinity of the ceiling of the hoistway. Further, the horizontal sheave 143 is provided with a latch 153 such that even if the car or the counterweight hits a buffer (not shown) positioned at a bottom of the hoistway and the tension of the hoist rope is released, the rope does not come off from a groove in the sheave. The drive sheave 63a is provided at the top of the hoistway and outside of the horizontal projection plane of the car, and in the area where the counterweight 3 is raised and lowered, that is, the lateral surface side of the car when viewed from the car door 20 (in the figure, while there is exemplarily shown the case where the counterweight is provided on the left side, the counterweight may be provided either of the right or left side), so as to have a rotation axis parallel to a longitudinal direction of the counterweight, that is, to a depth direction of the car of Fig. 9. Further, return sheaves 93a, 93b, 103a, 103b are arranged so as to respectively connect the drive sheave 63a and sheave 63b, and the weight suspending points 33a, 33b to each other in a line as shown in Fig. 9. Loads on the deflector sheave 83b, the drive sheave 63a, the ~~horizontal~~ return sheave 143, the sheave 63b, the return sheaves 93a, 93b, 103a, 103b, and the hoist 11 are supported by guide rails 43a, 43b, 53. The drive sheave 63a is driven at the top of the hoistway by the hoist 11 (indicated by a dashed line in the figure) provided outside of the horizontal projection plane region in which the car 2 is raised and lowered, and on the side where the counterweight 3 is raised and lowered.

Please amend the paragraph beginning at page 15, line 19, as follows:

The elevator according to this embodiment is structured as described above, and the hoist rope is provided in the vicinity of the ceiling of the hoistway by means of the horizontal sheave having a rotation axis in a vertical direction, thereby making it possible to reduce the height of the hoistway as compared to the conventional elevator in which the counterweight

is provided on the car lateral surface. Further, the [[car]] guide rails 43a, 43b are arranged diagonally with respect to the car, the position of the guide rail 43a gets close to the front side of the hoistway (entrance 20 side), so the rail span of the guide rail 53 for the counterweight 3 can be increased. As a result, the length of the counterweight in the longer lateral (depth) direction increases, thereby making it possible to reduce the lateral width or the length in the vertical direction of the weight for securing the same weight. The smaller the lateral width of the counterweight becomes, the smaller the plane space becomes, and the smaller the length in the vertical direction becomes, the smaller the height of the hoistway becomes.

Please amend the paragraph beginning at page 16, line 12, as follows:

In this embodiment, the hoist 11 is configured to drive only the drive sheave 63a. It is also possible to drive the sheave 63b as well with two hoists (each indicated by a solid line) as shown in Fig. 11, or to arrange the drive sheave 63a and the sheave 63b on the same axis to drive those with a single motor (hoist) 11a as shown in Fig. 12. Only the sheave 63b may be driven, and in that case, the winding angle of the hoist rope 73b with respect to the sheave 63b is equal to or less than  $90^\circ$ , so it is required to ensure a sufficient traction ability by using the hoist rope having a higher coefficient of friction such as a resin-covered rope rather than a conventional steel rope.

Please amend the paragraph beginning at page 20, line 2, as follows:

In this embodiment, there can only be ensured the winding angle of  $90^\circ$  of the hoist rope 74b with respect to the drive sheave 64. Therefore, it is required to ensure a sufficient traction ability by using the hoist rope having a higher coefficient of friction such as a resin-covered rope rather than a conventional steel rope. Further, as in Embodiment 1, it is also possible to separately form a portion of the drive sheave 64, on which the hoist rope 74b is

looped around, as another sheave to make the sheave rotatable with respect to the drive shaft of the hoist 11 through the intermediation of a bearing, for example, thereby avoiding the drive force to be transmitted.

Please amend the paragraph beginning at page 21, line 22, as follows:

The car suspending points 25a, 25b and the guide rails 45a, 45b for guiding the car 2 are arranged such that lines respectively connecting those to each other are parallel to a side on which the entrance is provided, the center of gravity of the car G exists between those lines, and the lines pass the vicinity of the center of gravity of the car G.

Please amend the paragraph beginning at page 23, line 9, as follows:

In this embodiment, the hoist 11 is configured to drive only the drive sheave 65a. It is also possible to drive both the drive sheave 65a and the sheave 65b with two hoists 11 (each indicated by a solid line) as shown in Fig. 17, or to arrange the drive sheave 65a and the sheave 65b on the same axis to drive those with a single motor (hoist) 11a as shown in Fig. 18. Only the sheave 65b may be driven, and in that case, the winding angle of the hoist rope 75b with respect to the sheave 65b is equal to or less than 90°, so it is required to ensure a sufficient traction ability by using a hoist rope having a higher coefficient of friction such as a resin-covered rope rather than a conventional steel rope.

Please amend the paragraph beginning at page 23, line 21, as follows:

Embodiment 7

Figs. 19 and 20 each show a construction of a machine room-less elevator according to Embodiment 7 of the present invention; Fig. 19 is a structural view viewed downwards from the top of the hoist, Fig. 20 is a side view viewed in a direction of an arrow of Fig. 19.

In the figures, portions which are the same as or corresponding to those of the above embodiments are denoted by the same reference symbols, and the description thereof is omitted. Fig. 19 is the same as Fig. 1 except for a point in which a hoist rope 76 is shown as of one system and a point in which the counterweight 3 is shown as being supported by a suspension sheave 30. The suspension sheave 30 is provided with the counterweight 3, and the hoist rope 76 is looped around the suspension sheave to support the counterweight without being fixed to the counterweight. The hoist rope 76 having one end fixed to the car suspending point 2a ~~support portion 2a of the car~~, is looped around the drive sheave 6a via the deflector sheave 8a, is changed in direction at the two return sheaves 9a, 10a to be looped around the suspension sheave 30 on the counterweight, and is fixed to the car suspending point 2b ~~support portion 2b of the car~~ at the other end thereof via the return sheaves 10b, 9b, the sheave 6b, and the deflector sheave 8b as described above.

Please amend the paragraph beginning at page 25, line 12, as follows:

The present invention is not limited to the embodiments as described above, and includes possible combinations of the embodiments. The gist of the present invention is to simplify a structure of a hoist or a looping structure of hoist ropes, and to lower the top of a hoistway by, for example, driving one of hoist ropes of two systems by a hoist, structuring counterweights by two counterweights each of which are guided by a single guide rail, using return sheave pivoted about a vertical shaft particularly at the top of a hoistway, cutting out a portion of a car interfering with the hoist when the car arrives at the upper limit in the hoistway, providing, in an elevator in which a counterweight is provided on the left or right side of lateral surface sides, a drive sheave on which a hoist rope is looped around such that an axial direction thereof coincides with a depth direction of a car, and providing a suspension sheave on the counterweight and looping a hoist rope having one end fixed to



either of the left or right sides of the car and the other end fixed to a position on the opposite side of the car around a first drive sheave, the suspension sheave, and a second drive sheave in the stated order such that the other end locates to be substantially symmetrical to the one end with respect to the center of gravity of the car.